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A New Humicolous Trechine Beetle from Hokuriku, Central Japan¹⁾

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In preparing a revision of the humicolous trechines belonging to the subgenus *Pseudepaphius*, I have realized that the material now available is still inadequate as regards the forms occurring in western Honshu, although a large number of specimens have already been accumulated from all over Shikoku and Kyushu. The greatest blank in our knowledge is that no *Pseudepaphius* has been found in the northern part of the Kinki District, which includes the Tanba Highlands and the Wakasa-Echizen area. This means that the populations of the Ryôhaku Mountains and the Noto Peninsula, which are the northeasternmost known localities of *Pseudepaphius* (cf. UÉNO, 1975, p. 151), are seemingly isolated from the main areas of the subgeneric distribution. Further extensive collectings are needed for filling in the blank, but the operation cannot be carried out within a year or two, since good collecting seasons are rather limited on the Japan Sea side. Under this situation, I consider it better to introduce the northeastern species into science at this stage of study.

The abbreviations used herein are the same as explained in my previous papers (e. g., UÉNO, 1975, p. 137).

Before going further, I wish to express my hearty thanks to Messrs. Yasuhiko HAYASHI, Norio OHTANI and Taichi SHIBATA for their kind aid in submitting their specimens to me for study and in providing full information on the localities and habitats of the new species.

Epaphiopsis (Pseudepaphius) hayashii S. UÉNO, sp. nov.

(Figs. 1-3)

Length: 2.95-3.45 mm (from apical margin of clypeus to apices of elytra).

Externally similar to *E. ishizuchiensis* S. UÉNO (1962, p. 71, fig. 14), but the body is less robust, the colour is evidently lighter, the head is less transverse, having slenderer antennae, flatter eyes and more convex genae, the pronotum is less transverse and less contracted anteriorly, and the elytra have less salient shoulders. Decisively differing from *E. ishizuchiensis* in the structure of its aedeagus, which is lightly sclerotized, regularly arcuate, and has a large basal bulb; the inner sac bears a large compact mat of sclerotized teeth, which is spatulate and looks like a differentiated copulatory piece.

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Colour light reddish brown, shiny, and faintly iridescent; elytra and lateral areas of pronotum yellowish brown, though their sides are edged with dark colour; palpi, apical half of antennae, ventral side of hind body, and legs yellowish brown.

Head small, wider than long, and depressed above, with deep entire frontal furrows which are obtusely subangulate at middle, rather widely divergent in front, and more widely and rather straightly so towards neck constriction; frons and supraorbital areas gently convex; supraorbital pores close to each other and situated on lines slightly convergent posteriad, the anterior one being foveolate; microsculpture irregular, largely consisting of transverse meshes and lines but partially disordered; eyes small and flat, though still being longer than genae, the latter tumid, five-eighths to eight-ninths (usually about two-thirds) as long as eyes; neck wide, with anterior constriction sharply marked at the sides; labrum transverse, shallowly emarginate or slightly bisinuate at apex; mentum tooth usually simple, sometimes slightly truncated at the tip; submentum sexsetose; palpi short and thick, penultimate segments dilated towards apex, apical ones conical; antennae subfiliform, short, reaching basal one-fifth of elytra in ♂, basal one-sixth of elytra in ♀, with segment 2 about as long as segment 4 and very slightly shorter than segment 3; antennal segments 7–10 each oblong-oval, nearly twice as long as wide; terminal segment about as long as scape but only two-thirds as wide as the latter.

Pronotum large, moderately transverse, usually widest at about five-eighths from base, and more rapidly contracted in front than behind; PW/HW 1.39–1.48 (M 1.44), PW/PL 1.31–1.40 (M 1.36), PW/PA 1.39–1.47 (M 1.43), PW/PB 1.22–1.32 (M 1.27); surface convex though more or less depressed on the disk, with vague transverse striations; microsculpture composed of fine transverse lines though widely obliterated; sides moderately arcuate in front, nearly straight behind, and hardly sinuate before hind angles, which are usually obtuse though distinctly marked; side borders narrow in front but becoming wider behind middle; apex nearly straight at middle or slightly emarginate, with front angles rather widely rounded though a little advanced; base wider than apex, PB/PA 1.08–1.17 (M 1.13), feebly arcuate at middle, slightly sinuate on each side, and somewhat oblique inside each hind angle; median line distinct on the disk, not widening near base; apical transverse impression vague, but with distinct longitudinal wrinkles; basal transverse impression distinct, narrow and continuous; basal foveae fairly deep, smooth at the bottom; postangular carina very short and obtuse, sometimes disappearing; basal area narrow, more or less uneven.

Elytra ovate and convex, usually widest at about four-ninths from base; EW/PW 1.33–1.44 (M 1.39), EL/EW 1.37–1.45 (M 1.42); shoulders rounded, with prehumeral borders perpendicular to the mid-line at the inner portion; sides narrowly bordered and feebly arcuate, without distinct preapical emargination; apices conjointly rounded; striae entire, fairly deep and coarsely punctate even at the side, stria 8 deepening behind the middle group of marginal umbilicate pores; scutellar striole short but deep, apical one also short but deep, usually free at the anterior end though directed to the terminus of stria 5; intervals slightly convex and smooth; apical carina obtuse; stria 3

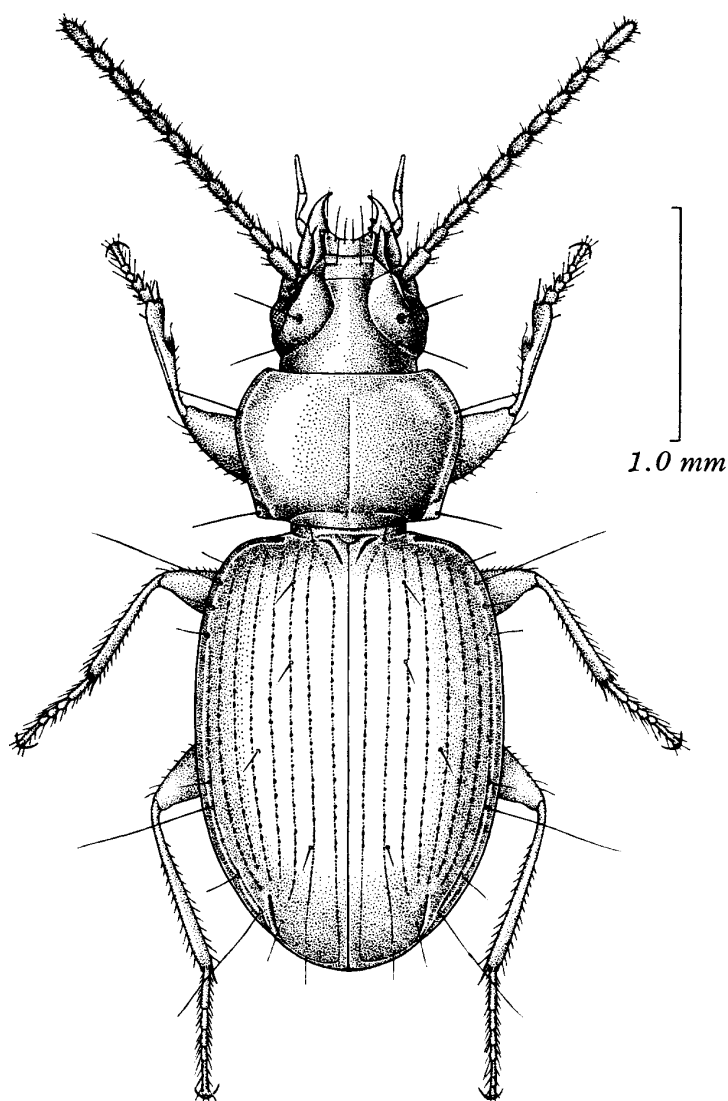
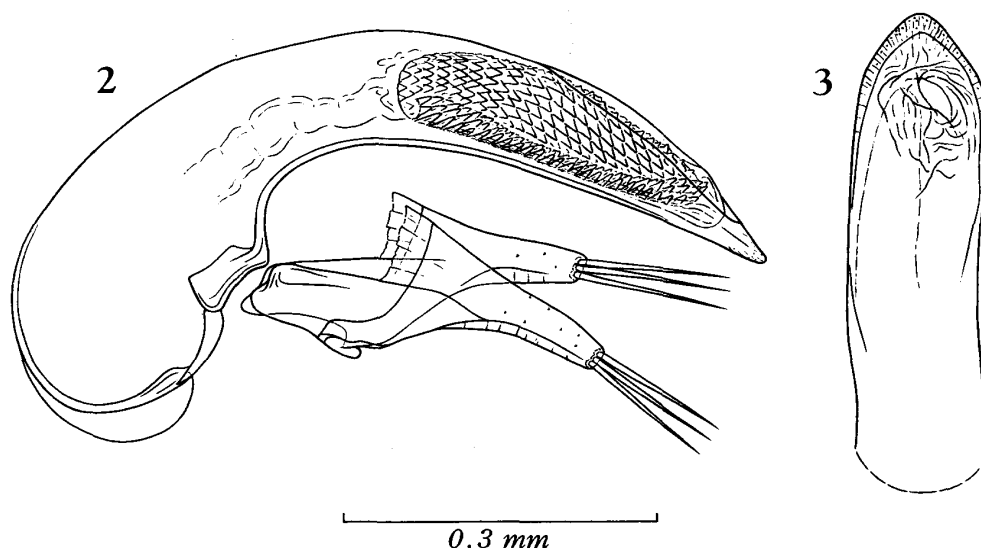


Fig. 1. *Epaphiopsis (Pseudepaphius) hayashii* S. UENO, sp. nov., ♂, of Kana-tani at the southeastern foot of Kunimi-yama.

with two setiferous dorsal pores situated at $1/10$ – $1/8$ and $1/4$ – $1/3$ from base respectively; preapical pore situated on interval 3 at $1/4$ – $1/3$ from apex and adjoining stria 2; interval 5 with a single setiferous dorsal pore at $1/2$ – $4/7$ from base, the pore frequently adjoining stria 5; apical pores normal; marginal umbilicate series regular; microsculpture almost vanished though consisting of fine transverse lines.

Ventral surface smooth; sexual setae on anal sternite normal. Legs short but relatively slender; protibiae nearly straight, moderately dilated towards apex, distinctly grooved on the external face, and glabrous on the anterior face even near apex; tarsi fairly thin, segment 4 with a long ventral apophysis in pro- and mesotarsi; in ♂, two proximal segments of each protarsus widely dilated and stoutly produced inwards at apices.

Male genital organ fairly large but lightly sclerotized. Aedeagus about three-eighths as long as elytra, regularly arcuate, and gradually attenuate towards apex in profile, with large round basal bulb, which bears a narrow hyaline sagittal aileron; basal orifice small, with the sides not emarginate; viewed laterally, apical lobe short, ending in a blunt tip; viewed dorsally, apical part broad and subtriangular, with the tip narrowly rounded; in lateral view, ventral side moderately emarginate at middle but nearly straight before apex. Inner sac armed with a large compact mat of well sclerotized teeth, which is spatulate and lies in the inner sac with the convex face towards the right ventral side. Styles large, left style being longer than the right, each usually bearing three setae at apex but sometimes possessing four apical setae.



Figs. 2-3. *Epaphiopsis* (*Pseudepaphius*) *hayashii* S. UÉNO, sp. nov., of Kana-tani at the southeastern foot of Kunimi-yama. — 2. Male genitalia, left lateral view. — 3. Apical part of aedeagus, dorsal view.

Type-series. Holotype: ♂, allotype: ♀, Kana-tani, ca. 250 m alt., 12-VI-1960, Y. HAYASHI leg. (NSMT). Paratypes: 8 ♂♂, 2 ♀♀, Kana-tani, ca. 250 m alt., 12-VI-1960, Y. HAYASHI leg. (NSMT & TS); 2 ♂♂, 3 ♀♀, Kana-tani, ca. 250 m alt., 4-VI-1961, Y. HAYASHI leg. (NSMT & TS); 3 ♂♂, 3 ♀♀, Kura-ga-také, ca. 500 m alt., 16-VI-1962, Y. HAYASHI leg. (NSMT & TS); 1 ♂, 2 ♀♀, Iwô-zen, ca. 650 m alt., 28-VI-1959, Y. HAYASHI leg. (NSMT & TS).

Localities. Kana-tani at the southeastern foot of Kunimi-yama (type-locality!), Kura-ga-také and Iwô-zen, all in Kanazawa-shi, at the northern part of the Ryôhaku Mountains, in Ishikawa Prefecture, on the Japan Sea side of central Honshu, Japan.

Further specimens examined. 2 ♂♂, 1 ♀, Takasu-yama, ca. 500 m alt., ca. 4.5 km E of Wajima in the Noto Peninsula, Ishikawa Pref., 23-VI-1971, N. OHTANI leg. (NSMT).

Notes. The present new species is remarkable in having a large compact mat of well sclerotized teeth in the inner sac of its aedeagus. The teeth-mat is spatulate and

very similar in appearance to a differentiated copulatory piece of certain advanced trechines. This seems to suggest the derivation of copulatory pieces, which must have been formed by fusion of sclerotized teeth that had originally developed from scales produced by sac membranes.

The Takasu-yama population, isolated from the typical ones by the Ohchigata Lowland and by a distance of about 100 km, consists of such individuals as have weaker punctures on the elytral striae and relatively narrow lobe at the aedeagal apex. They are slightly different from the type-series also in the body form, as is shown in the following standard ratios of their body parts: PW/HW 1.47–1.48, PW/PL 1.34–1.40 (M 1.37), PW/PA 1.47–1.50 (M 1.48), PW/PB 1.28–1.33 (M 1.30), PB/PA 1.10–1.17 (M 1.14), EW/PW 1.37–1.38, EL/EW 1.42–1.49 (M 1.46). An infraspecific taxon might be recognized for this population, but I prefer to refrain from naming it in view of the insufficiency of the material now at my hand.

Kana-tani, the type-locality of this new species, is a small valley in the upper course of the Sai-kawa River. The spot where the trechines were found was in a deciduous broadleaved forest on the left side of the valley. All the specimens were sifted out from a heap of humid vegetable debris accumulated at the foot of a cliff. At the second locality, Kura-ga-také, which is about 6 km distant to west by north from Kana-tani, the trechine specimens were obtained in a thick forest of deciduous broadleaved trees, by a sifting of dead leaves accumulated on the forest floor. The habitat condition on Iwô-zen, about 11 km distant to northeast from Kana-tani, is almost the same as that on Kura-ga-také. Finally, the Takasu-yama specimens were found from under dead leaves accumulated at the bottom of a ditch at the side of a mountain road.

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